We claim:

1. A method of transmitting a signal in an orthogonal frequency division multiplexing (OFDM) system, comprising the steps of:

differentially encoding said signal in the frequency domain; and

transforming said differentially modulated signal to create said OFDM signal.

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2. The method of claim 1, wherein said transforming step implements a Fast Fourier Transform.

3. The method of claim 1, wherein said transforming step implements an orthogonal transformation.

4. The method of claim 1, wherein said transforming step generates said OFDM signal with a plurality of sub-carriers for carrying data.

5. The method of claim 4, wherein at least one unmodulated sub-carrier generated by said transforming step is allocated as a pilot bin to provide a reference within each OFDM symbol.

6. The method of claim 4, wherein said differential encoding is performed with ~~respect to consecutive sub-carriers in said OFDM system.~~

7. An orthogonal frequency division multiplexing (OFDM) transmitter for transmitting an OFDM signal, comprising:

a differential encoder for modulating said OFDM signal in the frequency domain; and

~~a transformer for creating said OFDM signal.~~

8. The transmitter of claim 7, wherein said transformer implements a Fast Fourier Transform.

9. The transmitter of claim 7, wherein said transformer implements an orthogonal transformation.

10. The transmitter of claim 7, wherein said transformer generates said OFDM signal with a plurality of sub-carriers for carrying data.

11. The transmitter of claim 10, wherein at least one unmodulated sub-carrier generated by said transforming step is allocated as a pilot bin to provide a reference within each OFDM symbol.

12. The transmitter of claim 10, wherein said differential encoding is performed with respect to consecutive sub-carriers in said OFDM system.

13. A method of receiving a signal in an orthogonal frequency division multiplexing (OFDM) system, comprising the steps of:

transforming said received signal to recover an OFDM signal in the frequency domain having a plurality of sub-carriers; and

differentially decoding said OFDM signal in the frequency domain.

14. The method of claim 13, wherein said transforming step implements a Fast Fourier Transform.

15. The method of claim 13, wherein said transforming step implements an orthogonal transformation.

16. The method of claim 13, wherein at least one unmodulated sub-carrier recovered by said transforming step is allocated as a pilot bin to provide a reference within each OFDM symbol.

17. The method of claim 13, wherein said differential decoding is performed with respect to consecutive sub-carriers in said OFDM system.

18. An orthogonal frequency division multiplexing (OFDM) receiver for receiving an OFDM signal, comprising:

a transformer for recovering said OFDM signal having a plurality of sub-carriers; and

a differential decoder for demodulating said OFDM signal in the frequency domain.

19. The receiver of claim 18, wherein said transformer implements a Fast Fourier Transform.

20. The receiver of claim 18, wherein said transformer implements an orthogonal transformation.

21. The receiver of claim 18, wherein at least one unmodulated sub-carrier recovered by said transformer is allocated as a pilot bin to provide a reference within each OFDM symbol.

22. The receiver of claim 18, wherein said differential decoder demodulates said OFDM signal with respect to consecutive sub-carriers in said OFDM system.